

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018763**Date Inspected:** 24-Nov-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG**Summary of Items Observed:**

CWI Inspectors: Mr. Bao Quan, Mr. Lv Li Qing

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

OBG Bay 14

This QA Inspector observed ZPMC welder Mr. Wang Jinjiu stencil 043661 used shielded metal arc welding procedure specification WPS-345-SMAW-4G(4F)-FCM-Repair to make OBG segment 14E weld repair SEG3019A-009. This QA Inspector observed a welding current of approximately 150 amps and Mr. Wang Jinjiu appeared to be certified to make this weld. This QA Inspector observed that the weld repair documents do not indicate if a magnetic particle inspection had been performed prior to welding. ABF CWI Mr. Geng Wei informed this QA Inspector that ZPMC had previously performed magnetic particle inspections of the weld cavity prior to welding. This weld repair was the result of ultrasonic rejections and is being tracked on critical weld repair B-CWR-2263. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Zhang Xiang Rong, stencil 066763 used flux cored welding procedure WPS-B-T-2232-TC-U5-F to make weld SEG3020J-047. This weld joins OBG segment 13AE joins FB3111A to bottom plate SA3012A. This QA Inspector observed a welding current of approximately 325 amps

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and 30.7 volts. This QA Inspector observed the base materials were heated with an electric heater to preheat and maintain the base material temperature of this weld joint during welding and once the welding was complete, ZPMC turned off the power to the electric heating element and the base material temperature decreased to below 160 degrees Celsius. Caltrans QA Inspectors have been instructed to implement the requirements of document titled "Weld Procedure Requirements for New Welds" otherwise known as "NEW WELD PROCEDURE (Rager / McQuaid)". This weld procedure requires a 160 degrees Celsius post weld heat be maintained after the welding is completed and the length of time that the post weld heat is maintained is dependent on the thickness of the plates being welded. ZPMC welding personnel did not maintain post weld heat and this QA Inspector issued an incident report to document that ZPMC violating the requirements of the "NEW WELD PROCEDURE (Rager / McQuaid)" section 5 "Postweld Thermal Treatment." See the photographs below for additional information.

This QA Inspector observed ZPMC welder Mr. Liu Xiaolin, stencil 067079 used flux cored welding procedure specification WPS-B-T-2233-TC-U5-F to make OBG segment 13AE weld SEG3007Y-334. This QA Inspector observed ZPMC QC has recorded a welding current of 208 amps, 25.4 volts and Mr. Liu Xiaolin appeared to be certified to make this weld. This QA Inspector observed the base materials were heated with an electric heater to preheat and maintain the base material temperature of this weld joint during welding and once the welding was complete, ZPMC turned off the power to the electric heating element and the base material temperature decreased to below 160 degrees Celsius. Following completion of the welding, ZPMC welding personnel did not maintain post weld heat and this QA Inspector issued an incident report to document that ZPMC violating the requirements of the "NEW WELD PROCEDURE (Rager / McQuaid)" procedure section 5 "Postweld Thermal Treatment."

This QA Inspector observed ZPMC welder Mr. Wang Quanlin stencil 066746 used flux cored welding procedure specification WPS-B-T-2232-TC-U5-F to make OBG segment 13AE weld SEG3007G-048. This QA Inspector observed ZPMC QC has recorded a welding current of 315 amps, 30.7 volts and Mr. Wang Quanlin appeared to be certified to make this weld. This QA Inspector observed the base materials were heated with an electric heater to preheat and maintain the base material temperature of this weld joint during welding and once the welding was complete, ZPMC turned off the power to the electric heating element and the base material temperature decreased to below 160 degrees Celsius. Following completion of the welding, ZPMC welding personnel did not maintain post weld heat and this QA Inspector issued an incident report to document that ZPMC violating the requirements of the "NEW WELD PROCEDURE (Rager / McQuaid)" procedure section 5 "Postweld Thermal Treatment."

This QA Inspector observed ZPMC welder Mr. Ye Bing stencil 066733 used flux cored welding procedure specification WPS-B-T-2232-TC-U5-F to make OBG segment 13AE welds SEG3007L-045 and 046 . This QA Inspector observed ZPMC QC has recorded a welding current of 319 amps, 30.4 volts and Mr. Ye Bing appeared to be certified to make this weld. This QA Inspector observed the base materials were heated with an electric heater to preheat and maintain the base material temperature of this weld joint during welding and once the welding was complete, ZPMC turned off the power to the electric heating element and the base material temperature decreased to below 160 degrees Celsius. Following completion of the welding, ZPMC welding personnel did not maintain post weld heat and this QA Inspector issued an incident report to document that ZPMC violating the requirements of the "NEW WELD PROCEDURE (Rager / McQuaid)" procedure section 5 "Postweld Thermal Treatment."

This QA Inspector observed ZPMC welder Mr. Wu Hai Jun, stencil 201087 used shielded metal arc welding procedure specification WPS-B-P-2112-FCM-1 to make OBG segment 13AE welds SEG3007Y-201 and 202.

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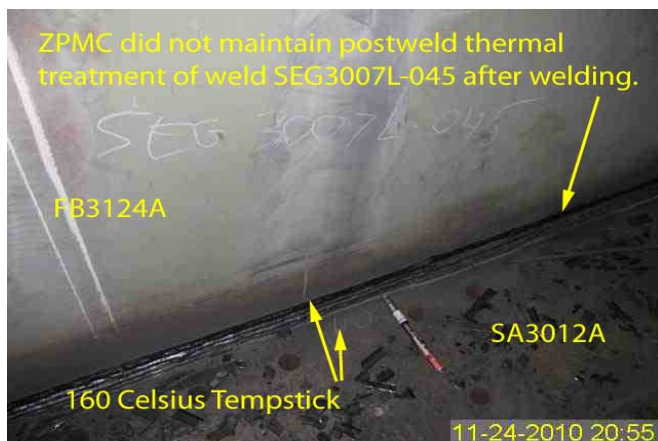
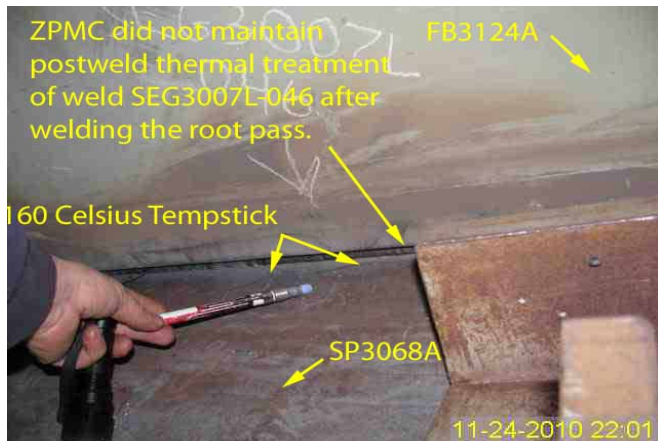
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This QA Inspector observed a welding current of 220 amps, the base material had been preheated with electric heaters and Mr. Wu Hai Jun appeared to be certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder stencil 066041 used shielded metal arc welding procedure specification WPS-B-P-2113-TC-U4B-FCM-1 to make OBG segment 13AE welds SEG3007Q-105. This QA Inspector observed the base material had been preheated with electric heaters. Items observed on this date appeared to generally comply with applicable contract documents.

Trial Assembly

ZPMC issued "Inspection Notification Sheet" number 07479 informing Caltrans QA that ZPMC is requesting ultrasonic inspections (UT) of OBG cross beam CB16 complete joint penetration welds SEG072E-13,22,31,40 and 49 in support of "Tagging in Process". This QA Inspector performed random visual and ultrasonic inspections of approximately 20% length of areas previously tested by ZPMC personnel and items observed by this QA Inspector appear to comply with AWS D1.5 UT requirements. For additional information on these inspections see this QA Inspector's TL6027 Ultrasonic Test Report dated today.



Summary of Conversations:

See Above.

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Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact James Devey +8615000026784, who represents the Office of Structural Materials for your project.

Inspected By:	Dawson,Paul	Quality Assurance Inspector
Reviewed By:	Carreon,Albert	QA Reviewer
